

DOCUMENT RESUME

ED 272 309

PS 015 952

AUTHOR Friedman, Sarah L.; And Others
TITLE Mediation of Toddlers' Cognitive Development by Mothers with and without Psychiatric Diagnosis of Depression.
PUB DATE May 86
NOTE 23p.; Paper presented at the Annual Symposium of the Jean Piaget Society (16th, Philadelphia, PA, May 29-31, 1986). For related document, see PS 015 968.
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)
EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Cognitive Ability; *Cognitive Development; Comparative Analysis; *Depression (Psychology); Interpersonal Relationship; *Mothers; *Parent Child Relationship; *Parent Influence; *Toddlers
IDENTIFIERS *Conversation

ABSTRACT

The incidence and nature of depressed and nondepressed mothers' unpremeditated "teaching" behaviors was investigated during 8-minute periods of videotaped interactions between each mother and her toddler and a suitcase full of toys. Diagnosed mothers had experienced depressive episodes during their child's lifetime. Nondepressed mothers did not differ from their depressed peers in age, education, socioeconomic class, or their children's age. Particular attention was given to the cognitive value of mothers' speech and behavior which was classified as involving (1) facts and principles, (2) knowledge acquisition, (3) knowledge representation, and (4) knowledge use. Preliminary data indicate that most of the time in interaction was spent in shared focus. Episodes of shared attention lasted for an average of 84.6 seconds. Mothers did not have a leading role in initiating, maintaining, and terminating a shared focus. More than 80 percent of children's questions were answered appropriately and 54.5 percent of mothers' responses imparted information and/or cognitive skills. Overall, 72 percent of responses involving cognitive contents were classified as involving the child. Mothers' behavior during shared focus evinced much more positive motivation or reinforcement than negative motivation or negative reinforcement. It was additionally found that women who had experienced depressive episodes appeared to expose their children to a cognitive environment that was somewhat different than the cognitive environment well mothers provided. Nine data tables are appended. (RH)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

ED272309

☒ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

* Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Mediation of Toddlers' Cognitive Development by Mothers
with and without Psychiatric Diagnosis of Depression.

Sarah L. Friedman, Ph.D.
National Institutes of Health

Malcolm A. Gordon, Ph.D.
National Institute of Mental Health

Mary C. Ross, B.A.
Georgetown University

"PERMISSION TO REPRODUCE THIS
MATERIAL HAS BEEN GRANTED BY

Sarah L.
Friedman

TO THE EDUCATIONAL RESOURCES
INFORMATION CENTER (ERIC)."

Prepared for presentation at the 16th Annual Symposium of the Jean Piaget Society. Philadelphia, May 29-31, 1986.

The research reported here was conducted when the authors were employed at the Laboratory of Developmental Psychology, NIMH. The raw data is from the NIMH Child Rearing Study which is directed by Dr. Marian Radke-Yarrow. The research was partly supported by the John D. and Catherine T. MacArthur Foundation Research Network on the Transition from Infancy to Early Childhood. The early conceptualization and the coding system were developed by the first author in collaboration with Dr. Tracy L. Sherman.

THE PURPOSE OF THE RESEARCH THAT I WILL BE REPORTING ABOUT TODAY IS TO INVESTIGATE MOTHERS' BEHAVIORS WHICH MAY INFLUENCE THE COGNITIVE ACQUISITION OF THEIR TODDLERS.

IMAGINE A 2-ROOM APARTMENT. YOU ARE OBSERVING A 31-MONTH-OLD CHILD WITH A BABY SITTER. THE ENTRANCE DOOR TO THE APARTMENT OPENS. MOTHER ENTERS, SHE IS RETURNING AFTER A BRIEF ABSENCE. THE CHILD FIRST LOOKS SILENTLY, THEN GETS EXCITED AND SAYS: MOMMY. MOTHER: YES, CHILD: SOMEBODY OPENED THIS (POINTS TO GATE). MOTHER: SOMEBODY; YOU MEAN ANNA? CHILD: YEAH, MOTHER: YES, SHE HAD TO OPEN IT TO COME IN, DIDN'T SHE? ANNE GAVE ME A SUITCASE AND SAID THERE'RE TOYS IN HERE. SITTER: BYE BYE. MOTHER: BYE. CHILD: MOMMY, WE GO HOME? MOTHER:

PS 015952

WHAT? (PAUSE) IT IS NOT TIME FOR US TO GO HOME, WANT TO SEE THE TOYS THAT ARE IN HERE? CHILD: YES MOTHER: O.K. I HAVEN'T EVEN LOOKED AT THEM YET, SO LET'S LOOK TOGETHER. CHILD: (INAUDIBLE) THIS ONE. MOTHER: DID YOU PLAY WITH ANNA?

WE OBSERVED 32 MOTHERS AND CHILDREN FOR 8 MINUTES, STARTING WITH THEIR REUNION. THEIR MEAN AGE WAS 31.8 YEARS AND THEIR MEAN EDUCATION WAS "SOME COLLEGE" WITH THE LEAST EDUCATED MOTHER STILL HAVING COMPLETED HIGH SCHOOL. THE CHILDREN WERE 17 BOYS AND 15 GIRLS WITH A MEAN AGE OF 34.7 MONTHS (S.D.=5.3). AS YOU JUST HEARD, THE MOTHERS CAME BACK INTO THE APARTMENT AFTER A SHORT ABSENCE. THEY BROUGHT WITH THEM A SUITCASE WITH TOYS INCLUDING A KITTY-CAT, LEGO BLOCKS, PAPERS AND CRAYONS. THERE WERE OTHER TOYS IN THE APARTMENT. THE MOTHERS HAD BEEN INSTRUCTED TO CONSIDER THE APARTMENT AS A HOME AWAY FROM HOME. THEY COULD SPEND THE TIME THAT WE OBSERVED IN ANY WAY THEY WANTED. THEY HAD NOT BEEN ASKED TO TEACH THEIR CHILD.

TRANSCRIPTS WERE MADE OF THE MOTHER-CHILD INTERACTIONS AND THE VIDEOTAPED INTERACTIONS AS WELL AS THE TRANSCRIPTS WERE USED IN ORDER TO CODE THE MOTHERS' BEHAVIOR.

FIRST, I WOULD LIKE TO CHART OUT THE CONCEPTUAL FRAMEWORK THAT LED TO OUR WORK. THERE IS A LARGE BODY OF RESEARCH SHOWING THAT THE ENVIRONMENT IN WHICH AN INDIVIDUAL DEVELOPS HAS THE POWER TO AFFECT THE COGNITIVE GROWTH OF THAT INDIVIDUAL (E.G. SCARR AND WEINBURG). THAT RESEARCH IS PRIMARILY CORRELATIONAL AND WHILE IT INDICATES THE DIRECTION AND CONSEQUENCES OF CERTAIN ENVIRONMENTAL INFLUENCES, THE

RESEARCH DOES NOT REVEAL THE MECHANISM UNDERLYING HOW ENVIRONMENTS INFLUENCE THE QUALITY OF COGNITIVE DEVELOPMENT.

PSYCHOLOGICAL THEORIES SUGGEST TWO CLASSES OF MECHANISMS THAT MAY UNDERLIE THE FINDINGS ABOUT THE EFFECTS OF THE ENVIRONMENT ON THE CHILD'S INTELLECTUAL DEVELOPMENT. FIRST, THE CHILD FROM THE MORE ADVANTAGED BACKGROUND WILL BE EXPOSED TO MORE VARIED, RICHER SOURCES OF STIMULATION (BOTH ANIMATE AND INANIMATE) AND WILL THEREFORE HAVE A GREATER OPPORTUNITY TO EXERCISE HIS/HER COGNITIVE REPERTOIRE AND TO PROMOTE HIS/HER OWN COGNITIVE DEVELOPMENT. THESE THEORIES EMPHASIZE THE CHILD'S OWN ROLE AS AN ACTIVE ORGANIZER OF HIS ENVIRONMENT AND OF HIS EXPERIENCES AND PAY LITTLE ATTENTION TO THE ROLE OF MORE EXPERT OTHERS IN HELPING THE CHILD DEVELOP COGNITIVELY (PIAGET, E.J. GIBSON). A SECOND TRADITION PLACES GREATER EMPHASIS ON TUTORED LEARNING EXPERIENCES THAT ARE PROVIDED BY ADULTS, SPECIFICALLY PARENTS, FOR THE CHILD. THE HYPOTHESIS GENERATED BY THIS POINT OF VIEW IS THAT MORE EDUCATED AND/OR BRIGHTER PARENTS AFFECT THEIR CHILD'S COGNITIVE DEVELOPMENT DIRECTLY BY PROVIDING THE CHILD WITH MORE APPROPRIATE, HIGHER QUALITY STRUCTURED LEARNING EXPERIENCES (VYGOTSKY, FEUERSTEIN). THIS LATTER HYPOTHESIS REGARDING THE INFLUENCES OF PARENTS' BEHAVIORS ON THE CHILD'S COGNITIVE SKILLS IS DIRECTLY SUPPORTED BY EVIDENCE FROM STUDIES ABOUT THE POSITIVE EFFECTS OF SCHOOLING ON COGNITIVE SKILLS (REVIEWED BY ROGOFF).

WE HAVE STARTED WITH THE ASSUMPTION THAT THE CHILD'S MIND IS MALLEABLE AND THAT IT IS INFLUENCED BY INTERACTIONS WITH SOCIAL OTHERS. WE DECIDED TO FOCUS ON THE PROCESSES THROUGH WHICH SUCH INFLUENCES OCCUR.

WE CHOSE TO DOCUMENT SUCH PROCESSES AS THEY MANIFEST THEMSELVES IN THE INTERACTION OF MOTHERS AND THEIR TODDLER AGE CHILDREN.

OUR RESEARCH IS INTENDED TO ADD TO THE LARGE BODY OF RESEARCH ABOUT PARENTAL INFLUENCES AND INSTRUCTIONAL INFLUENCES ON COGNITIVE DEVELOPMENT. OUR CONTRIBUTION TO THIS LITERATURE IS WITHIN A TRADITION OF THEORY AND RESEARCH THAT POSTULATES THAT PARENTS DIRECTLY PROMOTE OR IMPEDE THE COGNITIVE DEVELOPMENT OF THEIR CHILDREN.

WE HYPOTHEZIZED THAT MOTHERS, THROUGH THEIR INTERACTIONS WITH THEIR CHILDREN, IMPART TO THEIR CHILDREN THE COGNITIVE CONTENTS THAT CHILDREN MUST ACQUIRE IN ORDER TO FUNCTION AS INTELLIGENT HUMAN BEINGS. WE EXAMINED THE MOTHERS' SPEECH AND BEHAVIOR FOR ITS COGNITIVE VALUE, GOING ON THE ASSUMPTION THAT EVEN SEEMINGLY INSIGNIFICANT EVERYDAY INTERACTIONS BETWEEN A MOTHER AND HER CHILD MAY BE THE SOURCE OF COGNITIVE ENRICHMENT.

WE CONCEPTUALIZED THE ROLE OF THE MOTHER AS A MEDIATOR OF COGNITIVE DEVELOPMENT IN THE FOLLOWING WAY:

TABLE 1 ABOUT HERE

I WOULD LIKE TO ELABORATE ON EACH OF THESE MATERNAL "TEACHING" FUNCTIONS. IN HER ROLE AS TEACHER, THE MOTHER IS HYPOTHEZIZED TO MAXIMIZE THE OPPORTUNITIES FOR INFORMATION EXCHANGE BY INITIATING AND BY MAINTAINING A SHARED FOCUS BETWEEN HERSELF AND HER CHILD, BY

RESPONDING POSITIVELY TO THE CHILD'S ATTEMPTS TO ESTABLISH A SHARED FOCUS AND BY PARTICIPATING WITH THE CHILD IN THE MAINTENANCE OF SHARED FOCUS. WE DEFINED A SHARED FOCUS AS HAVING BEEN ESTABLISHED WHEN (A) THE MOTHER AND CHILD INDICATE VIA OBSERVABLE BEHAVIOR (INCLUDING SPEECH) THAT THEY ARE ATTENDING TO EACH OTHER.

(B) BOTH ARE ATTENDING TO SOME COMMON OBJECT OR EVENT AND ARE AWARE OF EACH OTHER'S ATTENDING TO THE SAME EVENT.

IN OUR PRELIMINARY DATA BASED ON 480 SECONDS IN WHICH MOTHER AND CHILD HAVE AN OPPORTUNITY TO INTERACT WE FOUND THE FOLLOWING INFORMATION:

TABLE 2 ABOUT HERE

FIRST, WE FOUND THAT MOST OF THE TIME WAS SPENT IN SHARED FOCUS AND THE EPISODES OF SHARED ATTENTION LASTED FOR AN AVERAGE OF 84.6 SECONDS. IT IS QUITE APPARENT (FROM LOOKING AT THE TABLE) THAT MOTHERS HAVE AN IMPORTANT ROLE AS COLLABORATORS IN INITIATING, MAINTAINING AND TERMINATING A SHARED FOCUS. THEY DO NOT, HOWEVER, HAVE A LEADING ROLE. THIS MEANS THAT FROM A VERY YOUNG AGE THE CHILD SHAPES THE OPPORTUNITIES FOR LEARNING FROM SOCIAL OTHERS, IN THIS CASE THE MOTHER. THIS FINDING SUPPORTS CONCEPTS ADVANCED BY OTHERS.

A SECOND "TEACHING" FUNCTION THAT THE MOTHER PERFORMS IS RESPONDING TO THE CHILD'S QUERIES BY PROVIDING COGNITIVE CONTENTS.

TABLE 3 ABOUT HERE

ON THE AVERAGE EACH CHILD ASKED ABOUT 6.5 QUESTIONS DURING A MEAN OF 6.7 MINUTES OF SHARED FOCUS. MORE THAN 80% OF THE QUESTIONS WERE ANSWERED APPROPRIATELY (I.E. TO THE POINT, NOT PROVIDING FALSE INFORMATION) AND 54.5% WERE RESPONDED TO BY IMPARTING INFORMATION AND/OR COGNITIVE SKILLS.

THE PROVISION OF COGNITIVE SKILLS AND INFORMATION WHICH WE TERM "COGNITIVE CONTENT" IS AT THE HEART OF OUR STUDY. WE ARGUED THAT THE SPEECH AND BEHAVIOR OF MOTHERS WHEN THEY ARE IN SHARED FOCUS WITH THEIR CHILDREN CAN BE THOUGHT OF AS PROVIDING OPPORTUNITIES FOR LEARNING. WHEN A MOTHER LABELS AN OBJECT, CORRECTS A MISCONCEPTION, REASONS, ASKS THE CHILD TO EXPLAIN WHAT HE OR SHE MEAN, HER BEHAVIOR CAN BE DESIGNATED AS "TEACHING". WE HAVE NOT BEEN CONCERNED WITH WHETHER OR NOT THIS IS THE MOTHER'S INTENTION OR EVEN WHETHER SHE IS AWARE OF HER TEACHING ROLE.

OUR APPROACH TO CODING THE CONTENT OF MATERNAL SPEECH AND BEHAVIOR WAS CONCEPTUAL, "TOP-DOWN", RATHER THAN INDUCTIVE OR "BOTTOM-UP". WE THOUGHT OF THE KNOWLEDGE THAT CHILDREN BETWEEN THE AGES OF 2 AND 4 NEED AND ARE CAPABLE OF LEARNING. WE THEN DEvised A CODING SYSTEM TO ASSESS MOTHERS' BEHAVIORS IN TERMS OF WHAT THEY DO TO PROMOTE THESE SPECIFIC SKILLS OR CONTENT AREAS. OUR THINKING REGARDING THE KNOWLEDGE THAT CHILDREN ACQUIRE IS INFLUENCED BY CURRENT WORK IN COGNITIVE PSYCHOLOGY. WE CLASSIFIED THE KNOWLEDGE THAT YOUNG CHILDREN ACQUIRE INTO FOUR CATEGORIES.

TABLE 4 ABOUT HERE

OUR DATA SHOW THE FOLLOWING MEAN NUMBER OF ENTRIES IN EACH OF THE COGNITIVE CONTENT CATEGORIES.

TABLE 5 ABOUT HERE

THERE WAS A MEAN TOTAL OF 59.9 ENTRIES THAT WERE CODED AS COGNITIVE CONTENTS. 25.8% WERE FACTS AND PRINCIPLES AND 57.6% CONCERNED KNOWLEDGE USE. CHILDREN WERE EXPOSED TO LESS INFORMATION PERTAINING TO KNOWLEDGE ACQUISITION SKILLS (9.3% OF THE ENTRIES) AND TO INFORMATION PERTAINING TO KNOWLEDGE REPRESENTATION (7.2% OF THE ENTRIES). THIS LATTER FINDINGS ARE VERY INTERESTING, SINCE THEORETICALLY THESE TWO CLASSES OF SKILLS SHOULD BE VERY IMPORTANT FOR THE TODDLER AGE CHILD WHO IS EXPLORING THE ENVIRONMENT AND WHO CLASSIFIES AND REPRESENTS HER EXPERIENCES.

IN ADDITION TO CODING EVERY INSTANCE IN WHICH THE MOTHER IMPARTS COGNITIVE CONTENTS, THE CODER ALSO NOTED WHETHER THE MOTHER INVOLVED THE CHILD IN THE ACT OF THINKING ABOUT OR EXERCISING COGNITIVE SKILLS. OVERALL, 72% OF THE INSTANCES IN WHICH COGNITIVE CONTENTS WERE IMPARTED WERE CLASSIFIED AS INVOLVING THE CHILD. THE DISTRIBUTION OF OF THESE INSTANCES OVER THE FOUR CONTENT AREAS ARE SHOWN IN TABLE 6.

TABLE 6 ABOUT HERE

IN OUR DATA OVER 99.9% OF THE REFERENTS IN THE CODED MATERNAL SPEECH AND BEHAVIOR WERE SPECIFIC RATHER THAN GENERAL AND 36.3% WERE PRESENT, I.E. THEY DID NOT INVOKE A REPRESENTATION OF AN OBJECT OR AN EVENT. 61.3% OCCURED OR WERE ABOUT TO OCCUR WITHIN A VERY SHORT TIME SPAN, I.E. WITHIN THE CONTEXT OF THE THREE HOURS VISIT TO THE APARTMENT.

TABLE 7 ABOUT HERE

SO FAR, I HAVE TALKED ABOUT THE MOTHERS' ROLE IN INITIATING AND MAINTAINING A SHARED FOCUS, ABOUT THEIR RESPONDING TO THEIR CHILDREN'S QUERIES AND ABOUT THE COGNITIVE CONTENTS THAT THEY IMPART TO THEIR CHILDREN. NOW, I WANT TO MOVE INTO THE ENJOYMENT AND MOTIVATION ASPECT OF THE MOTHER'S ROLE. IN OUR CONCEPTUALIZATION THE SOCIAL-EMOTIONAL COMPONENT IS EXTREMELY IMPORTANT. IF ENGAGEMENT IN LEARNING, REASONING, PLANNING AND PROBLEM SOLVING ARE TO TAKE ON A SPECIAL SIGNIFICANCE IN THE CHILD'S LIFE, THEY MUST BE PERCEIVED AS PLEASURABLE. THEY MUST INVOLVE FEELINGS OF MASTERY AND SELF WORTH. WE SUGGEST THAT THE MOTHER IS IN A SPECIAL POSITION TO MOTIVATE HER CHILD TO ENGAGE IN COGNITIVE ACTIVITY. SHE CAN DO SO BY EXPRESSING POSITIVE AFFECT WHEN SHE HERSELF IS ENGAGING IN COGNITIVE ACTIVITY, BY EXPRESSING POSITIVE AFFECT ON SEEING HER CHILD ENGAGING IN COGNITIVE ACTIVITY AND BY VERBALLY REINFORCING THE CHILD'S INVOLVEMENT IN COGNITIVE ACTIVITY. SOME MOTHERS, HOWEVER, MAY DISCOURAGE THE CHILD'S

ENGAGEMENT IN COGNITIVE ACTIVITY, THROUGH EXEMPLIFYING THEIR DISINTEREST AND THROUGH NEGATIVE REINFORCEMENT OF THE CHILD'S ENGAGEMENT IN CURIOSITY, PROBLEM SOLVING OR OTHER ACTIVITIES THAT ARE IMPORTANT FOR THE DEVELOPMENT OF COGNITION.

TABLE 8 ABOUT HERE

DURING THE MEAN 6.7 MINUTES OF SHARED FOCUS, WE CODED AN AVERAGE OF 7.1 INSTANCES OF POSITIVE MOTIVATION OR REINFORCEMENT. THIS IS MORE THAN ONE INSTANCE PER MINUTE. DURING THE SAME TIME WE CODED ONLY AN AVERAGE OF .28 NEGATIVE MOTIVATION OR REINFORCEMENT. IN ADDITION, WE CONSIDER THE SHARED FOCUS IN AND OF ITSELF AS A REINFORCING STATE OF AFFAIRS. AS WE HAVE ALREADY MENTIONED, THE MOTHERS AND THEIR CHILDREN SHARED AN AVERAGE OF 6.7 MINUTES IN JOINT ATTENTION WHEN THE MAXIMUM POSSIBLE WAS 8 MINUTES. DATA FROM OTHER STUDIES (E.G. DELOACHE, DUNN WOODING; SMILANSKI; FRIEDMAN ET AL.) SUGGEST THAT MOTHERS' AVAILABILITY IS A REINFORCING FACTOR: EPISODES OF PLAY IN WHICH THE MOTHER PARTICIPATES ARE LONGER THAN EPISODES IN WHICH THE CHILD PLAYS ALONE.

A FACT WHICH I HAVE FAILED TO MENTION UNTIL THIS POINT IS THAT FIFTEEN OF THE MOTHERS HAD NO HISTORY OF PSYCHIATRIC ILLNESS, SIXTEEN OTHER MOTHERS HAD A DIAGNOSIS OF MAJOR DEPRESSION AND HAVE EXPERIENCED DEPRESSIVE EPISODES IN THE TARGET CHILD'S LIFETIME. ONE ADDITIONAL MOTHER WAS ORIGINALLY IN THE GROUP WITH NO PSYCHIATRIC DIAGNOSIS BUT ABOUT THREE YEARS LATER CONFESSED THAT SHE WAS NOT SINCERE IN HER REPLIES WHEN SHE WAS ORIGINALLY INTERVIEWED. THE DIAGNOSES WERE BASED

ON A STANDARD PSYCHIATRIC INTERVIEW (SADS-L INTERVIEW; RDC CRITERIA). THERE WERE NO STATISTICALLY SIGNIFICANT DIFFERENCES BETWEEN THE TWO GROUPS OF SUBJECTS IN TERMS OF THE MOTHERS' AGE, EDUCATION, SOCIO-ECONOMIC CLASS OR THEIR TARGET CHILD'S AGE.

ANALYSES OF VARIANCE WHICH WERE RUN TO COMPARE THE GROUPS ON ALL THE VARIABLES DISCUSSED EARLIER REVEALED THAT ON MOST VARIABLES THERE WERE NO STATISTICALLY SIGNIFICANT GROUP DIFFERENCES. THE GROUPS WERE SIGNIFICANTLY DIFFERENT ONLY IN TERMS OF 4 OUT OF THE 20 VARIABLES STUDIED (I.E. 20%). ON ONE ADDITIONAL VARIABLE, THE GROUPS WERE DIFFERENT AT THE $p=.09$ LEVEL.

TABLE 9 ABOUT HERE

THE WOMEN WITH A DIAGNOSIS OF DEPRESSION TENDED TO INITIATE A GREATER PERCENT OF THE EPISODES OF SHARED FOCUS. WHEN THEY INTERACTED WITH THEIR CHILDREN THEY APPEARED TO BE MORE IN CHARGE OF KEEPING THE INTERACTION GOING THAN WERE WOMEN FREE OF DIAGNOSIS: THEY WERE THE PARTNER RESPONSIBLE FOR MAINTAINING THE SHARED FOCUS IN A LARGER PERCENT OF THE EPISODES. WHEN THE WOMEN WITH THE DIAGNOSIS OF DEPRESSION COMMUNICATED WITH THEIR CHILDREN THEY REFERRED TO MORE PARTICULARISTIC REFERENTS, I.E. THEY REFERRED TO MORE EVENTS OR OR OBJECTS THAN DID THE NORMAL WOMEN. THEY ALSO REFERRED TO MORE REFERENTS THAT WERE NOT PRESENT AT THE TIME THESE WERE MENTIONED. RATHER, THE REFERENTS WERE PRESENT OR ABOUT TO BE PRESENT WITHIN THE TIME FRAMEWORK OF THE VISIT TO THE APARTMENT. ALSO, THE WOMEN IN THE DEPRESSED GROUP WERE IMPARTING MORE INFORMATION IN THE AREA OF

KNOWLEDGE USE. A CLOSER LOOK AT THE DATA REVEALED THAT THE GROUP DIFFERENCES IN TERMS OF "REFERENT ALMOST PRESENT" AND IN TERMS OF "KNOWLEDGE USE" WERE DUE TO DIFFERENCES IN THE "PLANNING AND PROBLEM SOLVING" SUB-CATEGORY UNDER "KNOWLEDGE USE". THIS SUBCATEGORY CAPTURES THE MOTHERS' DIRECTIVES TO THE CHILD AND STATEMENTS BY THE MOTHER ABOUT WHAT SHE, THE CHILD OR BOTH OF THEM DID OR WERE GOING TO DO NEXT.

IF THE OBSERVED BEHAVIORS ARE NOT SPECIFIC TO THE SITUATION IN WHICH THESE MOTHERS WERE OBSERVED, ONE CAN ARGUE THAT WOMEN WHO EXPERIENCE DEPRESSIVE EPISODES EXPOSE THEIR CHILDREN TO A COGNITIVE ENVIRONMENT THAT IS SOMEWHAT DIFFERENT THAN THE COGNITIVE ENVIRONMENT THAT OFFSPRING OF WELL MOTHERS ARE EXPOSED TO. SUCH EXPOSURE OVER YEARS OF INTERACTION BETWEEN THE MOTHERS AND THEIR CHILDREN MAY LEAD TO MEASUREABLE COGNITIVE CONSEQUENCES. THESE CAN BE TESTED BY EXAMINING THE COGNITIVE PERFORMANCE OF THE CHILDREN, WHEN THE CHILDREN GROW UP.

IN ORDER TO TEST THE QUESTION OF THE GENERALIZABILITY OF OUR DATA WE HAVE CODED FIVE MINUTES OF THE DYADS' INTERACTION ON THEIR SECOND VISIT TO THE APARTMENT, ABOUT TWO WEEKS LATER. THE FIVE MINUTES SAMPLED ARE FROM A MEAL TIME SITUATION. THESE DATA STILL AWAITS ANALYSIS. IN ORDER TO INVESTIGATE THE LONG TERM OUTCOME OF MOTHERS' TEACHING WE ADMINISTERED TO THE SAME CHILDREN, ABOUT TWO TO THREE YEARS LATER, THE MCCARTHY SCALES OF CHILDREN ABILITIES. THE PERFORMANCE OF THE CHILDREN ON THE VERBAL, PERCEPTUAL-PERFORMANCE, QUANTITATIVE AND MEMORY ITEMS WILL BE RELATED TO SPECIFIC ASPECTS OF

MOTHER'S TEACHING. WE EXPECT THAT MOTHERS WHO PROVIDE MORE INFORMATION REGARDING FACTS AND KNOWLEDGE ACQUISITION SKILLS WILL HAVE CHILDREN WITH HIGHER VERBAL SCORES. LIKEWISE, MOTHERS WHO PROVIDE MORE INFORMATION IN THE AREA OF KNOWLEDGE REPRESENTATION WILL HAVE CHILDREN WITH BETTER MEMORY SKILLS.

THE IDEA THAT VERBAL AND NON-VERBAL INTERACTION BETWEEN MOTHERS AND CHILDREN SHOULD HAVE AN EFFECT ON THE VERBAL AND INTELLECTUAL DEVELOPMENT OF THEIR CHILDREN IS NOT NEW. THE NOVELTY OF OUR APPROACH IS THE PROPOSITION THAT SPECIFIC ASPECTS OF MOTHERS' BEHAVIOR CAN BE VIEWED AS MEDIA FOR CONVEYING INFORMATION, THINKING SKILLS AND MOTIVATION TO ENGAGE IN COGNITIVE ACTIVITIES.

Table 1

The mother's role as a mediator of her toddler's cognitive development

- a. Creates and/or maintains episodes of shared focus.
- b. Responds to her child's queries by providing cognitive contents.
- c. Provides cognitive contents through her action and speech.
- d. Motivates her child to engage in cognitive activity.

Table 2
 Characteristics of episodes and moms'
 role in them

	$\bar{x}$	S.D.
Total minutes	6.7	(1.2)
Number	4.8	(3.2)
% H initiates	51.1	(34.4)
% H most responsible	28.6	(35.6)
% M & C most responsible	42.1	(34.8)
% H terminates	40.4	(32.9)

Table 3

Children's queries and mothers' responses.

	$\bar{X}$	S.D.
# queries	6.5	(5.6)
% H answered appropriately		
- no cognitive contents	27.5	(31.2)
- with cognitive contents	54.5	(30.7)

Table 4
Knowledge that young children need
to acquire

- a. Knowledge about facts, principles.
- b. Knowledge acquisition skills.
- c. Knowledge representation.
- d. Knowledge use.

Table 5

The distribution of pieces of cognitive contents over the four categories.

	$\bar{x}$	%
Facts and principles	15.5	25.8
Knowledge acquisition	5.6	9.3
Knowledge representation	4.3	7.2
Knowledge use	34.5	57.6
Total	59.9	

Table 6

The percent of pieces of cognitive content that mothers imparted through involving their children

	%
Facts and principles	42.0
Knowledge acquisition	79.4
Knowledge representation	86.0
Knowledge use	80.6
All contents	72.0

Table 7
Characteristics of referents

	$\bar{X}$	S.D.
Particularistic	49.38	(22.60)
General	0.16	(0.52)
Present	18.19	(9.15)
Almost present	30.74	(19.58)
Absent	1.16	(1.41)

Table 8

Motivating and reinforcing speech
and behavior pertaining to
engagement in cognitive activity

	$\bar{x}$	S.D.
Positive motivation or reinforcement	7.1	(3.9)
Negative motivation or reinforcement	0.2	(0.6)

Table 9
Group Differences

	WELL	DEPRESSED	p $\geq$
	$\bar{x}$	$\bar{x}$	
EPISODES			
% M Initiates	40.4	61.8	.09
% M most resp.	15.6	43.5	.03
REFERENTS			
Particularistic	37.6	59.6	.007
Almost present	17.2	43.2	.000
COGNITIVE CONTENT			
Knowledge use	28.5	40.4	.04